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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/526,930	03/16/2000	Timothy M. Schmidt	TI-30734	1461

7590 11/30/2004
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EXAMINER

KIM, KEVIN

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/526,930

Applicant(s)

SCHMIDT ET AL.

Examiner

Kevin Y Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/13/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-11 and 28-36 is/are allowed.
- 6) ☒ Claim(s) 1,4,6,7,12-22,24-27,37,38 and 40-47 is/are rejected.
- 7) ☒ Claim(s) 2,3,5,23 and 39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on July 13, 2004 have been fully considered but they are not persuasive.

Applicant traverses the rejection of claims 1,4,6,7,12-22,24-27,37,38 and 40-47, first by challenging the motivation put forth by the examiner in combining prior art references in the rejection of the claims "as nothing more than hindsight reconstruction," and concludes that the examiner failed "to provide any evidence in the prior art that suggests, supports or recommends any such combination of technologies." However, the previous Office action cited a paragraph in the prior art reference (Tangemann patent at col.4, lines 59-65), teaching that an increased diversity gain benefit of "selectively phase shifting data communication signals" at a diversity transmitter. Since this teaching of improved performance is described in the prior art, applicant's argument of hindsight reconstruction has no merit. In other words, the motivation to combine references, proposed by the examiner, was not drawn from applicant's own disclosure. Applicant failed to address why this advantageous "phase shifting" teaching of Tangeman would not or could not have been employed in the Winters reference' diversity transmitter.

Next, applicant argues that even the combined references fail to teach or suggest all of the elements of the claims because while the present invention provides "a delay for EACH antenna" the Winters reference has no delay associated with a first antenna. However, in the case of Winters et al, a data communication signal to the first antenna is considered to have a default of delay of zero, which is distinct from apparently non-zero delays provided to data communication signals to the remaining antennas.

Applicant contends that since the number of transmitting means is two in Tangemann, it does not qualify as 'a plurality of spaced apart antennas.' However, it is well established that the phrase "a plurality of" is met by a showing of more than one.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1,4,6,7,12-22,24-27,37,38,40-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winters (IEEE document) in view of Tangemann (US 6,636,495).

Consider claim 1. Winters disclose a method of communicating data a transmitter and a receiver by using a plurality of antennas at the transmitter site. A communication signal $S(t)$ is transmitted to each of a plurality of antennas and a distinct delay is associated with each signal transmitted to each of a plurality of antennas. See Fig. 1 and related descriptions. Winters, however, fails to teach "selectively phase shifting data communication signals produced at the transmitter to generate derived versions of" of the data communication signals. In other words, a data communication signal is phase shifted in addition to delayed before it is communicated to the receiver. Tangemann teaches a diversity transmission where phase information related to signals transmitted by transmitter diversity antennas are fed back to the transmitter diversity antennas so that the phases of signals provided to the antennas are changed in a way to achieve a diversity gain at the receiver. See col.4, lines 59-65. Thus, it would have been obvious to one skilled in the art at the time invention was made to selectively phase shift the communication

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signal $S(t)$ of Winters prior to respective delays (D , $2D$, ...) to respective antennas for the purpose of having the delayed signals received at the receiver without phase differences as taught by Tangemann.

Regarding claims 4, 37 and 38 calling for selective amplitude scaling and/or selective phase shifting, see Tangemann at col.4, lines 9-13 teaching the amplitude information is also used for maximum likelihood detection at the receiver although the phase correction is describe for the sake of simplicity.

Regarding claims 6 and 40 calling for the signal to be associated with a CDMA data signal, see Tangemann at col. 3, line 28.

Regarding claims 7 and 41 calling for the signal to be associated with a TDMA data signal, it is a well known communication signal and it would have a matter of design choice what multiple access signal to be used when the Winters' diversity transmission system as modified by Tangemann is employed.

Consider claims 12,15,18,21,24,26 and 42. Winters disclose a transmission device/means for communicating data between a transmitter and a receiver by using a plurality of antennas at the transmitter site. Specifically, Fig. 1 shows a plurality of spaced apart antennas, a signal distributing means coupling the signal $S(t)$ to the antennas, delaying means (D 's) coupled to the antennas for providing a distinctive delay. Winters, however, fails to teach "channel measuring means for a derived version of each communication signal." Tangemann teaches a diversity transmission where phase information related to signals transmitted by transmitter diversity antennas are fed back to the transmitter diversity antennas so that the phases of signals provided to the antennas are changed in a way to achieve a diversity gain at the receiver. See col.4, lines

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59-65. In other words, a derived version of the communication signal is produced for each antenna as the signal undergoes a phase shift. Thus, it would have been obvious to one skilled in the art at the time invention was made to provide a derived version of the communication signal $S(t)$, i.e., phase shifted versions, of Winters prior to respective delays (D , $2D$, ...) to respective antennas for the purpose of having the delayed signals received at the receiver without phase differences as taught by Tangemann.

Regarding claims 13,19,43 and 46 calling for the signal to be associated with a CDMA data signal, see Tangemann at col. 3, line 28.

Regarding claim 14,20,44 and 47 calling for the signal to be associated with a TDMA data signal, it is a well known communication signal and it would have a matter of design choice what multiple access signal to be used when the Winters' diversity transmission system as modified by Tangemann is employed.

Regarding claims 16,17,22,25,27 and 45 calling for selective amplitude scaling and/or phase shifting, see Tangemann at col.4, lines 9-13 teaching the amplitude information is also used although the phase correction is describe for the sake of simplicity.

Allowable Subject Matter

4. Claims 8-11 and 28-36 are allowed.
5. Claims 2,3,5,23 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kvk



CHIEH M. FAN
PRIMARY EXAMINER